-93- Orlando Allen

REPORT

ON THE

HALSEY ESTATE

Coal and Iron Mines,

SITUATE IN

SERGEANT TOWNSHIP,

McKEAN COUNTY, PENNSYLVANIA.

PHILADELPHIA:
R. RAE & CO., S. E. CORNER FIFTH AND WALNUT STREETS.
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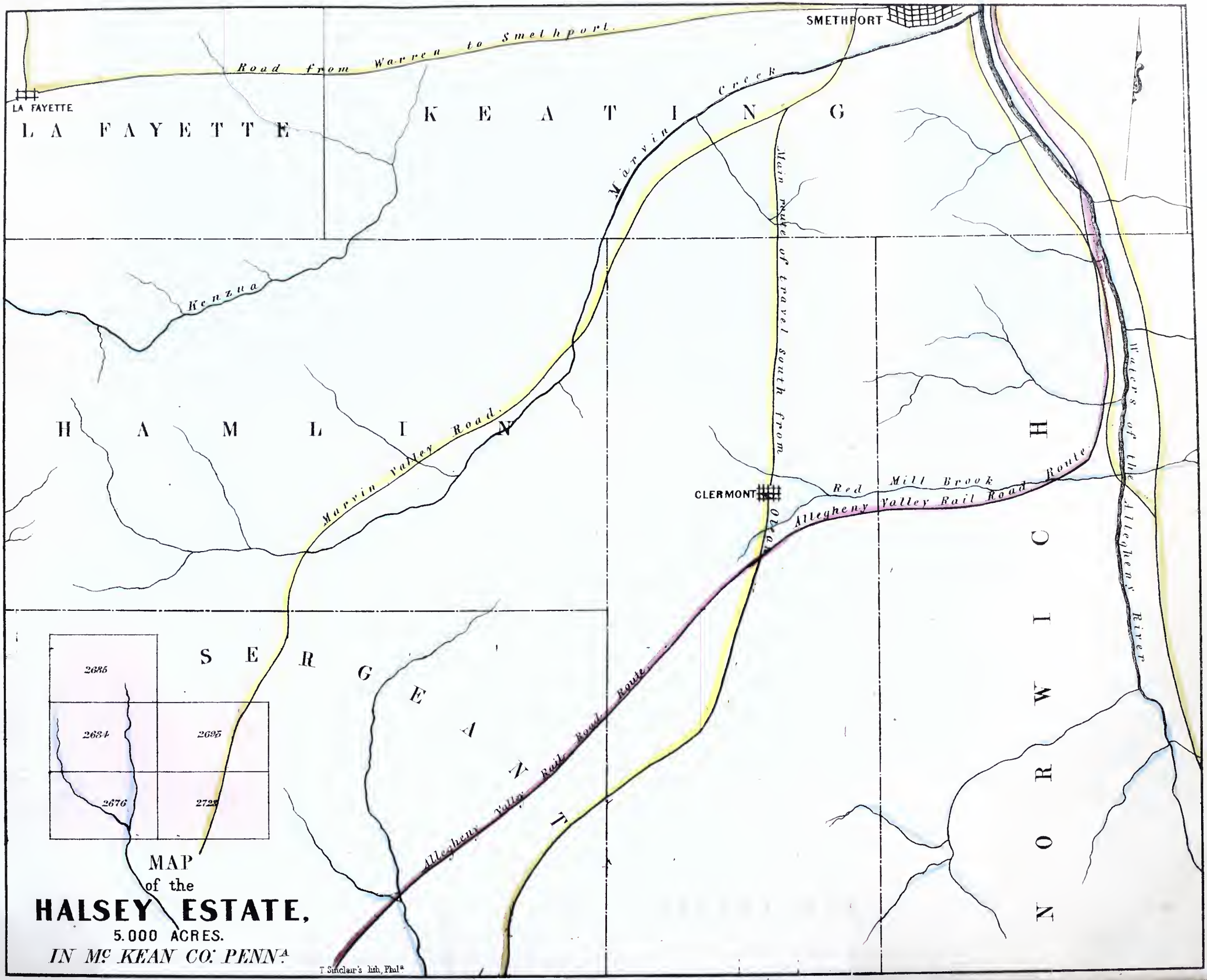

SMETHPORT
Road from Warren to Smethport.
LA FAYETTE
LA FAYETTE
KEATING
Marvin creek
Main route of travel South from
Kenzua
HAMLIN
Marvin Valley Road.
CLERMONT
Red Mill Brook
Allegheny Valley Rail Road Route
Allegheny River
SERGEANT
NORWICH
2685
2684
2695
2676
2722
Allegheny Valley Rail Road Route.
MAP
of the
HALSEY ESTATE,
5.000 ACRES.
IN Mc KEAN CO. PENNA
T Sinclair's lith, Phila

THE

Halsey Estate,

CONTAINING 5,000 ACRES,

IN McKEAN COUNTY, PENNSYLVANIA.

THIS ESTATE is a contiguous, compact body of lands, lying in the Township of Sergeant, in the County of McKean. The lands are among the most elevated in this section of Pennsylvania, and it is here where the tributaries of the Susquehanna and Ohio take their rise, flowing east and west, into the Atlantic and Gulf of Mexico. The land is not mountainous, but an elevated plateau, intersected by deep ravines and water-courses.

This estate is in the central part of the great Coal Field of McKean County, and from its elevated position, must consequently contain not only the lower, but also the higher strata of the great carboniferous formation of the Alleghenies.

The surface consists of a sandy loam, thickly covered with vegetable mould, making a strong and fertile soil, well adapted for cultivation and grazing.

The farms in the vicinity of this estate produce wheat, rye, oats, corn, potatoes, as abundantly as the Valley of the Genesee, and the spontaneous grasses are as nutritious and fattening to the cattle grazing there, as are the grapes of that famous Valley.

The purity and salubrity of the air is unsurpassed; no miasmatic vapors (the scourge of the Western States) are to be found or feared in this elevated region.

As an evidence of the great strength and fertility of the soil, the prodigious growth and great variety of trees might be referred to. Upon the hills, are the beech, maple, cherry, birch, poplar, oak and chestnut. The pine and hemlock abound in the valleys. Many of these measure from two and a half to three feet in diameter, and eighty feet in height without a limb.

Of the Coal.

The Coals deposited in this region are found in horizontal strata, and so far as yet ascertained, may be estimated about 18 feet in thickness. Openings are easily made, and measurements and results are readily ascertained, from the outcrop of the seams observable in the abrupt hills that skirt the rivers and creeks.

The annexed diagram, showing a cross section of this region, will serve to illustrate the position of the mineral beds, and the extent of the deposites.

The strata of Coal include about 24 inches of Cannel Coal, which can be readily separated from the Bituminous in the taking of it out.

According to the usual mode of calculating the quantity of Coal contained within the land, it is assumed that every cubic yard of Coal strata contains one ton of productive Coal. On this assumption, after deducting one-third for pillars and waste, the Halsey Estate must contain over eighty millions of tons of marketable Coal.

Professor Chilton, who analyzed specimens of Coal from this region, for the Rochester and McKean County Coal Company, furnished the following certificate:

"I have analyzed a specimen of the Coal from Elk County, Pa., for the Rochester and McKean County Coal Company, and find it to yield the following:

Fused Carbon, - - -	58·87
Bitumen or Gas, - - -	33·27
Water, - - - - -	4·00
Ashes, - - - -	3·86
	100·00

"This is a remarkably good quality of Coal. It yields a good, substantial coke, and its mode of burning resembles the best kind of Liverpool Coal. The proportion of sulphur is very small.

(Signed) J. R. CHILTON,
Chemist."

The Manhattan Gas Company, New York, made trial of McKean Coal for gas, and certified that one ton of 2,240 lbs. will produce 9,601 feet of gas, and 44 bushels of coke weighing 1,560 lbs. The coke of superior quality.

The Coal from this region has been analyzed by other chemists, producing similar results. Prof. Booth found only a trace of sulphur; this characteristic will render the Coal peculiarly valuable.

Report of J. M. McMinn, Geologist & Civil Eng'r.

(*Assistant Engineer of the Sunbury and Erie Railroad.*)

The Halsey Estate is situated on a Branch of the West Branch of the Clarion, in Sergeant Township, McKean County, Penna. It embraces an area of about 5,000 acres, the greater part of which lies in the form of basins and undulating plateaux, that are heavily set with valuable timber. The underlying rocks are composed of the carboniferous series, and

belong to the *Western Coal Basin* of Pennsylvania. This basin is characterized by the undisturbed position of its strata, and the large amount of bitumen and volatile matter that its Coal contains.

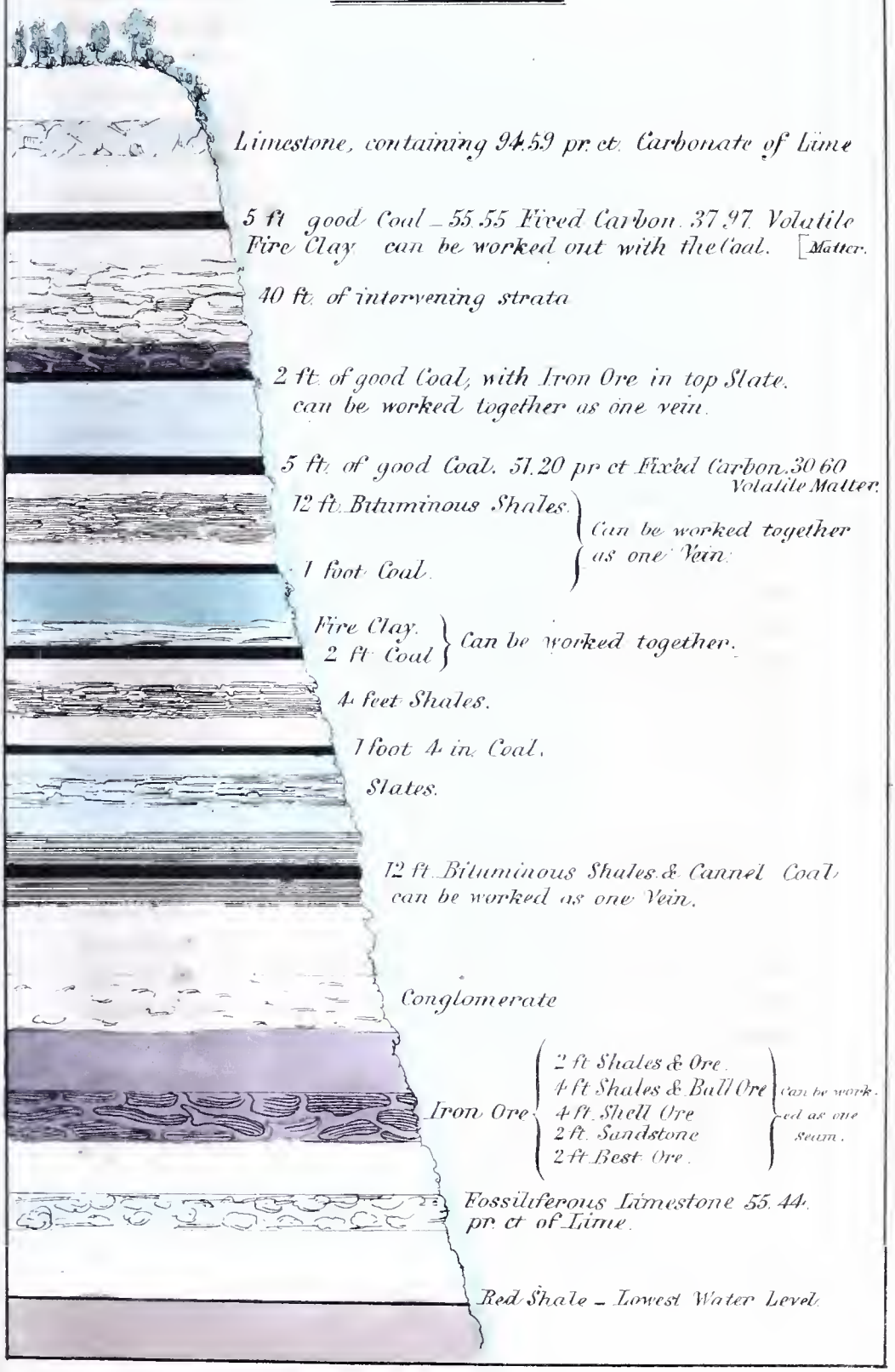
It is well known that as we advance eastward, the out-cropping Coal rocks present a disturbed condition, and often afford Coals of impure composition, and frequently of a decayed character, but the Coals of the Western Basin are exempt from these characteristics, and afford the very finest Bituminous Coals found in Pennsylvania. Mr. Sheafer detected seven veins of Coal in this Coal-field, all of which are probably well developed on the Halsey Estate. The uppermost vein is five feet thick, the second two feet, the third five feet, the fourth one foot, the fifth two feet, the sixth one and one-third feet, and the seventh twelve feet, including two feet of very beautiful CANNEL COAL, and some highly bituminous shales, which are said to be but little inferior to the celebrated Breckenridge Coal of Kentucky, for the oils and the gas, which have recently been detected to exist to so large an amount in that Coal.

There is no coal field in Pennsylvania more deserving of attention than this one, its proximity to the lakes, its location above the water, and its horizontal position admits of its being mined with the greatest facility and at the most reasonable expense, and if the shales and cannel coal in the interior of the basin should confirm the theories of geologists, respecting the existence of a large amount of lubricating oils and volatile matter contained in them, the value of this coal basin is beyond all computation.

Agreeably to a geological law, which seems to regulate the distribution of the strata of the secondary rocks of the United States, the carboniferous rocks increase in thickness as we advance westward, and the siliceous rocks increase as we advance eastward.

The horizontal and undisturbed condition of the strata, are other conditions favorable to the existence of bands of limestone, consequently, we here find well developed carboniferous rocks

CROSS SECTION of the Coal, Iron and Limestone Strata upon the HALSEY Estate, Sergeant Township, McKean Co. Penn.a containing 5,000 acres.


Limestone, containing 94.59 pr ct. Carbonate of Lime
5 ft good Coal – 55.55 Fixed Carbon. 37.97 Volatile Matter.
Fire Clay can be worked out with the Coal.
40 ft. of intervening strata
2 ft. of good Coal, with Iron Ore in top Slate. can be worked together as one vein.
5 ft. of good Coal. 51.20 pr ct Fixed Carbon. 30.60 Volatile Matter.
12 ft. Bituminous Shales.
1 foot Coal.
Can be worked together as one Vein.
Fire Clay.
2 ft. Coal
Can be worked together.
4 feet Shales.
1 foot 4 in. Coal.
Slates.
12 ft. Bituminous Shales & Cannel Coal can be worked as one Vein.
Conglomerate
Iron Ore
2 ft. Shales & Ore.
4 ft. Shales & Ball Ore
4 ft. Shell Ore
2 ft. Sandstone
2 ft. Best Ore.
Can be worked as one seam.
Fossiliferous Limestone 55.44 pr ct of Lime.
Red Shale – Lowest Water Level

containing limestone of good quality and free from the impurities which generally characterize the limestones of the coal regions.

A number of valuable iron ores are found through this estate, embracing several varieties of argillaceous carbonate, and nodular proto-carbonates of iron, and the iron ores, in connection with the limestone and coal, at once render this district one of the most favorable mineral districts in the world.

A furnace stack situated at the base of the mountain may receive the ores, the flux, and the fuel from drifts run into the beds which repose in strata, one above the other, in the most extraordinary abundance. Interstratified with these are beds of the most valuable fire-clay, inferior to none found in the State, and the soil is susceptible of a high degree of cultivation, and every way valuable for agricultural purposes.

The decomposing shales, slates and limestones afford a soil very different from that found among the conglomeratic rocks of the eastern coal measures.

The entire property is one of a peculiarly interesting character, and should command the attention of capitalists desirous of investing their funds in a property that has real prospective advantages in it.

Extracts

From a report made by Professor James Hall, the eminent State Geologist of New York, on a portion of this coal field for the Lafayette Coal Company, in 1853.

"The area here described, embracing coal north of the Kinzua, is much more extensive than any other portion of the coal fields of Pennsylvania, so far north. All other basins of this latitude which are known, east of this, are isolated tracts, much smaller in extent and broken in character."

"That portion of the measures succeeding the conglomerate, and occupying the tract under consideration, consists, first above the conglomerate of sandstones and shales, with a stratum of coal twenty yards in thickness, and which of course is not taken into account in estimating the quantity of coal on the property. To this succeed shales and sandstones, which are followed by a bed of workable coal *three* feet thick, and containing in its lower part a seam of valuable fire-clay, twelve to fifteen inches thick. Above this we have slate and sandstone for fifteen or sixteen feet, succeeded by a third bed of coal about *five and a half* feet in thickness, of which twenty inches are cannel coal. This bed in its turn is covered by shales and sandstones."

Professor Hall remarked before an audience of the citizens of Buffalo:

"At this point (Lafayette), within little more than eighty miles of Buffalo, there were five to ten thousand acres of land underlaid with two workable beds of coal. One of these beds has a thickness of three feet and the other five and a half feet. Within the latter is a stratum of cannel coal, twenty inches thick. Upon the tract he had been especially requested to examine (5,600 acres), he had estimated there were about 40,000,000 tons of coal.

"This tract, he said, was not an isolated basin, but the northern extremity of one of the large basins forming a continuation with the great coal fields to the south and south-west. It was separated by the deep gorge of Kinzua Creek, which has cut through the coal strata, still the strata on the north and on the south sides are continuations of the same beds as much as are the strata on the two sides of the Niagara river, below the falls.

"From the information he had received, the average price of coal in Cleveland and Erie, was about $2 50 per ton, and the coal of McKean county, could be delivered in Buffalo at that price or even less, when the work (the Buffalo and Pittsburgh Railroad) should be in full operation. The quality of this coal is very good; it is, he said, a dry, open-burning bituminous coal, burning with much flame and comparatively little smoke, not melting and coking in the grate, and on this account well adapted to steam boilers and manufacturing operations.

"In looking to the north at the natural outlet for this coal, we find a large tract of country which thus far is but partially supplied from the Lake Erie ports, or still more imperfectly on its eastern and northern sides by the anthracite and the coal of Blossburgh. The anthracite of Scranton and Lehigh reaches the larger towns by way of canals and railroads, but at a cost at least double that at which the McKean county coal can be supplied. We shall be able to show that the coal of McKean county is the most accessible of any hitherto explored, for supplying all the State of New York west of the Genesee river, and to some extent east of that line, and we shall also show that the coal can be more directly and cheaply supplied from this quarter than any other.

"The fact that this portion of the State of New York is now but partially supplied or altogether unsupplied with coal is no argument against its consumption when it can be furnished at a cheap rate.

A cheap and abundant supply of mineral fuel must eventually

lie at the basis of our manufacturing operations, and so soon as coal of a good quality and abundant in quantity can be supplied to the villages, towns and cities of Western New York, manufactories of all kinds will spring up and flourish. The absence of water-power will be supplied by the steam engine, and new sources of industry and wealth will follow in the train of this abundant supply of fuel."

In referring to that part of the State of New York west of the Genesee river, the professor says "The ordinary consumption of these places, he estimates at 500,000 tons per annum *now*, *exclusive* of that used for manufactories, locomotives and steamboats. In the manufacture of gas, Erie coal is used, but this is not satisfactory, and a better is needed for the purpose; the McKean county coal will supply this want.

"Lehigh coal is worth in Rochester, $6 12 to $6 50 per ton by the boat load; it retails at about $7 50. Scranton coal is sold at $7 75, or varies from $5 50 to $6 25 per ton. Blossburgh coal is sold at $5, or probably by the boat load, at $4 50 to 4 75. The Erie coal at wholesale, is $4 60, and a poorer quality $3 37, retailing at $5. Pittsburgh coal, used to some extent for gas, is sold at wholesale for $5 50 per ton. It cannot be expected that at these prices for fuel, manufactories can flourish; the average price is nearly *double* what it should be, and what it *would* be, were there direct lines of communication with the inexhaustible coal fields of Pennsylvania. The use of coal is rapidly increasing in Rochester, even at the present prices; and when the McKean county coal is introduced there at a price which will yield a large profit to the company (proprietor), it is easy to see that it will supplant all other bituminous coals, and to a great extent, the anthracite; while the low price will induce an extensive consumption in manufactories which are not now carried on for the want of this very fuel.

"The ports on the upper lakes, other portions of Western New York east of the Genesee river, the ports bordering on Lake Ontario and the St. Lawrence, and those portions of Canada, in

the same relation and situation to the lake and river, may all be supplied from this source more cheaply than can be done at the present time from any other. The area over which it may be distributed, and with greater or fully equal advantages with other coals, may be estimated as four times larger than Western New York, and containing a population of nearly two millions of inhabitants.

"It cannot be long before it will be found necessary to use coke on the railroad lines passing through these portions of the country where the forests are rapidly diminishing, and where wood must soon become scarce and dear.

"Looking, however, only to Buffalo, and the market for coal at this place, and in same direction, we see a demand quite sufficient to keep in activity all the force that can be employed upon these mines.

"The history of the coal trade in every part of the country, shows that the increase of consumption has been governed by no ordinary rule; it has far outstripped the natural increase from increase of population, and advanced at a rate that no one could have anticipated. Mr. Taylor has shown that the consumption of anthracite in 1820, was but 365 tons, and that, in 1846, it had reached 2,982,309 tons; and that in ten years after its use was fully established, from 1837 to 1847, the increase was from 724,539 to 2,982,309, or more than four times in a period of ten years. In the absence of other than partial facts, we may estimate that the demand for bituminous coal in Northern New York, and from steamboats on the lake, will be more than quadrupled in ten years. In 1825, the quantity of coal consumed in Pittsburgh, was 35,794, while in 1845, it had reached 454,286 tons; thirteen times as much as in 1825. At that time the population of the city was less than 50,000. At the present time, taking the same rate of increase, the consumption has increased to more than 2,000,000 tons."

REMARKS

ON THE

Coal Fields of McKean Co., Pa.

BY AN EXPERIENCED GENTLEMAN CONNECTED FOR THIRTY YEARS WITH THE COAL REGION OF SCHUYLKILL COUNTY, PENNA.

Twenty-five years ago, the Schuylkill Coal Region was what the McKean Coal Field is at this time; or, rather, it may be said, that McKean has now prospective certainties greater than the people of Schuylkill county dreamed of ten years after that date. By reason of its slow ignition, anthracite found unusual obstacles to its introduction. Steamers complained, as now, that it gave little flame, and burned out the fire-boxes and the boilers. Iron men said it was not adapted to smelting, Lime-burners hooted at it, declaring, "It spoils the lime." But after a time, all these found a way to use it, because it was cheap. At first, the Schuylkill Coal Field had no outlet, but a small canal, with small boats and terrible lockage.* So little did the Canal Company anticipate the vast trade that was coming, that it gave long leases on the water powers at its locks, which very soon after had to be bought back, at enormous valuations. Scarcely had they secured these, before the immense tonnage made it necessary to enlarge the canal to double its former

* The boats on the Rochester Canal carry 100 tons.

capacity; and afterwards it was doubled again with locks greatly enlarged in capacity and reduced in number. Before this last improvement was made, a railroad began to be talked of, as necessary. The canal quaked with fear that the railway would take the whole carrying trade. The public said, competition will destroy both. The result proves that both works are taxed to their fullest capacity by a tonnage, greater far than all the calculations of both: so much so, that finding there is more coal yearly pressing for carriage, than they can provide means to carry, the two companies (whose canal and railroad run side by side, each often crossing the other,) meet in friendly and sensible accord every season, divide the tonnage according to their carrying means, fix a stiff tariff of charges, and indulge in dividends to please themselves.

We give this bit of history to show that, in this country, even the most sanguine and the most interested have in all their early estimates of the consumption of coal, fallen short of the actual quantities demanded by the market.

When the Schuylkill coal basins were first opened, and for years after, railroads were unknown in this country. Manufacturing was in its infancy, and houses were not warmed by furnaces. Well wooded coal lands were bought then at from $30 to $40 per acre. Now, they are held for permanent investment at from ten to twenty times that price! And it is very rarely that a coal estate is for sale at all, in that county.

The Coal Fields of McKean, are a hundred fold riper than was the Schuylkill Coal Region, even fifteen years ago. Thirty miles from the mines of McKean, the New York and Erie Railroad is reached, from which spreads out a vast net-work of railroads, reaching to the Lakes, and to every part of Western and Central New York, as well as to the city of New York itself. What a population is spread over this vast territory! What markets for coal! What a climate for its consumption!

Manufactories abound here. The long winters stimulate such enterprise, to furnish employment and means of wealth. Cheap coal alone is wanted, to make this the leading feature of their

industry. What dormant iron ores will waken up sources of wealth and healthful labor, through the State of New York, when cheap coal can be had to smelt and forge them! No one doubts now, that coal will smelt iron. Little else is used. So also, with engines in manufactories, in locomotives and in steamboats! Give them coal cheap enough, and they will all consume it. All these are advantages which the Schuylkill Coal Field had not at its opening twenty-five years ago: and yet look at its yearly tons now counted by millions, and its boundless success!

Gas was a luxury scarcely known then; but anthracite does not make illuminating gas. Now, every little town that can get bituminous coal, at thrice the cost it will be from McKean, has its gas works. McKean coal would have in the very first year, a large market from gas works, extending to all the towns and cities between Buffalo and New York, Albany included. This alone would make a very large tonnage.

Besides, the McKean Coal Field has (what Schuylkill coal has not,) iron ores lying in the shales, and in the slates of its coal, than which none can be mined more cheaply; and it has rich limestones to flux the ores. It seems to have the same elements, to which Pittsburgh owes its mineral and manufacturing wealth; and it awaits only the same enterprise to give it the same relation to the Lake country, and to the interior of New York, that Pittsburgh bears to the Ohio countries, bordering upon her rivers, their tributaries and their confluents.

Situated as McKean is, it has no rivalry to fear from anthracite, nor to any consequential extent, with other bituminous coals. There is market at once and thereafter, within its own range, for its whole productive capacity. We may, therefore, without prejudice, speak of the preferences we know to be given to bituminous coals, where the cost is much greater than anthracite.

Our European steamers find it economy to burn bituminous coals at much higher prices than anthracite, and their experience is good for all steamships. The same remark applies to many branches of iron manufactory. In puddling works, for instance, it would be preferred at some advance in price. The tests in

locomotive engines, so far as we have them, are favorable to bituminous coals, chiefly coked. Anthracite is now used on railroads in the regions that produce it (where it has supplanted wood almost entirely); but we hear the old complaint, though greatly remedied, viz., that the intense heat necessary for rapid steam-making, burns out the fire-box and the tubular boiler-ends. On the Baltimore and Ohio Railway, bituminous coals are used with full success, both raw and coked; and there, the running results of every trial with anthracite, are favorable to the former. Wood is at once ruled out by its expensiveness.*

Last year, from experiments tried, some Philadelphia lime-burners were encouraged to substitute bituminous coal for anthracite. Mr. Henry Swartzengrover, an extensive lime-burner, reports, as the result of a year's experience, that one ton of bituminous burns the same quantity of lime as two tons of anthracite; and the lime is so much better, that it readily brings a higher price. There are many analogous purposes, in which similar results may be expected; extending the field of preference, when the relative prices are made more nearly alike.

For domestic uses, bituminous coal grows in favor with New York housekeepers. It is very costly there, but they like its ready kindling, its easy regulating and recuperating and its cheerful blaze; and they find compensating economy in the smaller quantity necessary to keep up combustion when they wish to moderate the parlor heat, and to give rest to the cooking range at night and in intermediate hours. We mention these things that the people of Central and Western New York may prepare to use this coal in their dwellings, assured that it will give them economy, comfort and satisfaction.

It is scarcely necessary to state (because it is so well known) that there is not one purpose for which anthracite is used, that

* A full report has been published by the New Creek Coal Company of Virginia, of these practical results in working locomotives. They appear conclusive. It is shown that bituminous coal is 50 per cent. cheaper than wood, where it costs little more than the price of cutting it.

cannot be at least equally well done with bituminous. In Wales, where both kinds are equally plenty, bituminous coals are greatly preferred in their vast iron works, and in every other department. In addition, it must be borne in mind that McKean coal can be mined at less than half the usual cost of anthracite.

Cost of McKean coal mining, - - - -	50 cents.
Incidentals, - - - - - -	10 "
	60 "
Carriage at 1½ ct. per ton per mile,	
This would give the whole cost of coal delivered via at Buffalo, Dunkirk and Erie, - - - - -	$2 20
Rochester, - - - - - -	2 70
Syracuse, - - - - - -	3 05

There will be found for McKean coal a large market at Buffalo, Erie and Dunkirk. Vessels arriving have full cargoes, but outward bound they require sand ballast. This fact will make these lake ports the great coaling points for vessels. By reason of its greater purity than the Cleveland coal, and the cheap freight, when taken as ballast, the merchants of Buffalo state that it will find extensive sale along the lake, even to its westward end.

What is needed to put McKean coal into the market, is a railroad or canal of only thirty miles, to Olean or its vicinity: a gentle down grade all the way. The railway has been located through the heart of the Halsey Estate. It is to unite Pittsburgh with the public works of New York. Already forty-three miles have been finished at the Pittsburgh end; and now it is under promise to go on with this end. The grade descends one foot in the mile, and there is no expensive cutting or filling. It is also in contemplation to continue the Genesee Valley canal from near Olean, towards the McKean coal field, which it would reach by simply slackwatering streams that have plenty of water and very little fall. This work would not cost over $40,000, and it would be a capital investment. When the necessary legislation is had, capital is ready for its execution.

We have seen the rise of all our coal regions; but never have we seen one which, at its first opening, had a prospect at all comparable with the McKean coal field, at this time. We were in Schuylkill county when people were just awakening, as now in McKean. Well wooded coal lands were being bought at from thirty dollars an acre, upwards. Men of small means but large foresight, joined together to buy up the properties.

But their wildest dreams of profit were far behind the reality, as well in time as in amount. They made a quick step from poverty to riches. And now what princely revenues they are getting from the rental of their collieries! We speak only what we know. We were with them; and we participate in their fortunes.

Where coal is, there wealth attends. This law is universal. Early in life, we made up our minds that coal mines must be a safe reliance. We linked our fortunes with that interest: we have never changed, and it has never deceived us. What the polar star is to the mariner, the coal hills have been to us—a trustful and unerring guide.

And now, if the experience of the past, in every land and in every age, may give safe rules for the future, they who enter the coal field of McKean at this its budding time, will harvest the golden fruit.

What is history in Schuylkill county, is safe prophecy in McKean. But the markets are so much riper in McKean, that, with an entire absence of risk, we may predict for the enterprising pioneers a much quicker realization.

On Bituminous Shales.

The McKean Coal Fields appear to abound in bituminous shales, of which formerly no account was taken. But now these shales prove as valuable as the coal, and often more so. They are subjected to distillation, and the products are singularly numerous and varied. Not only do they yield a superior oil for

burning and for lubricating, but pure white sperm-like candles are produced. Kerosene, or pure oil of coal, is now an article of American make, daily advertised in our papers. It is described as burning in any common lamp, and giving a soft light, of richer brilliancy than other oils or fluids. It is not mixed with any kind of spirits, and has no explosive properties. It neither smokes nor encrusts the wick. Age does not weaken it, nor does cold weather congeal it. It can be sold low, and yet amply reward the manufacturer. Coal oils dissolve india rubber and the rosins. Dr. Steiren, of Allegheny county, is the discoverer of a cheap and effectual process, which completely extracts all color and odor, and gives greater specific gravity to the oils: this last renders them less volatile.

Dr. Kent, the New York chemist, publishes the results of strict photometric proofs made of the comparative value of each kind of light, viz.:

MATERIAL.	Quantity of light from equal measures.	Cost of equal amounts of light.	Retail price per gallon.	Intensity of light.
Kerosene, or oil of coal, .	2.435	$ 4 10	$1 00	13.689
Camphene, ...	1.293	4 85	63	5.625
Sylvic oil, ...	.828	6 05	50	1.190
Rapeseed oil, ...	1.660	9 00	1 50	5.929
Whale oil, ...	.833	12 00	1 00	1.892
Lard oil, ...	.706	17 70	1 25	1.640
Sperm oil, ...	.850	26 47	2 25	2.025
Burning fluid, ...	.390	29 00	87	.553

Compared with New York Gas, he finds as follows, viz.:

	Intensity of light.	Cost of light of same intensity, per hour.	Retail prices.
Kerosene oil, ...	13.689	$2 44	$1 per gallon.
New York gas, ...	4.970	4 12	3 per M.

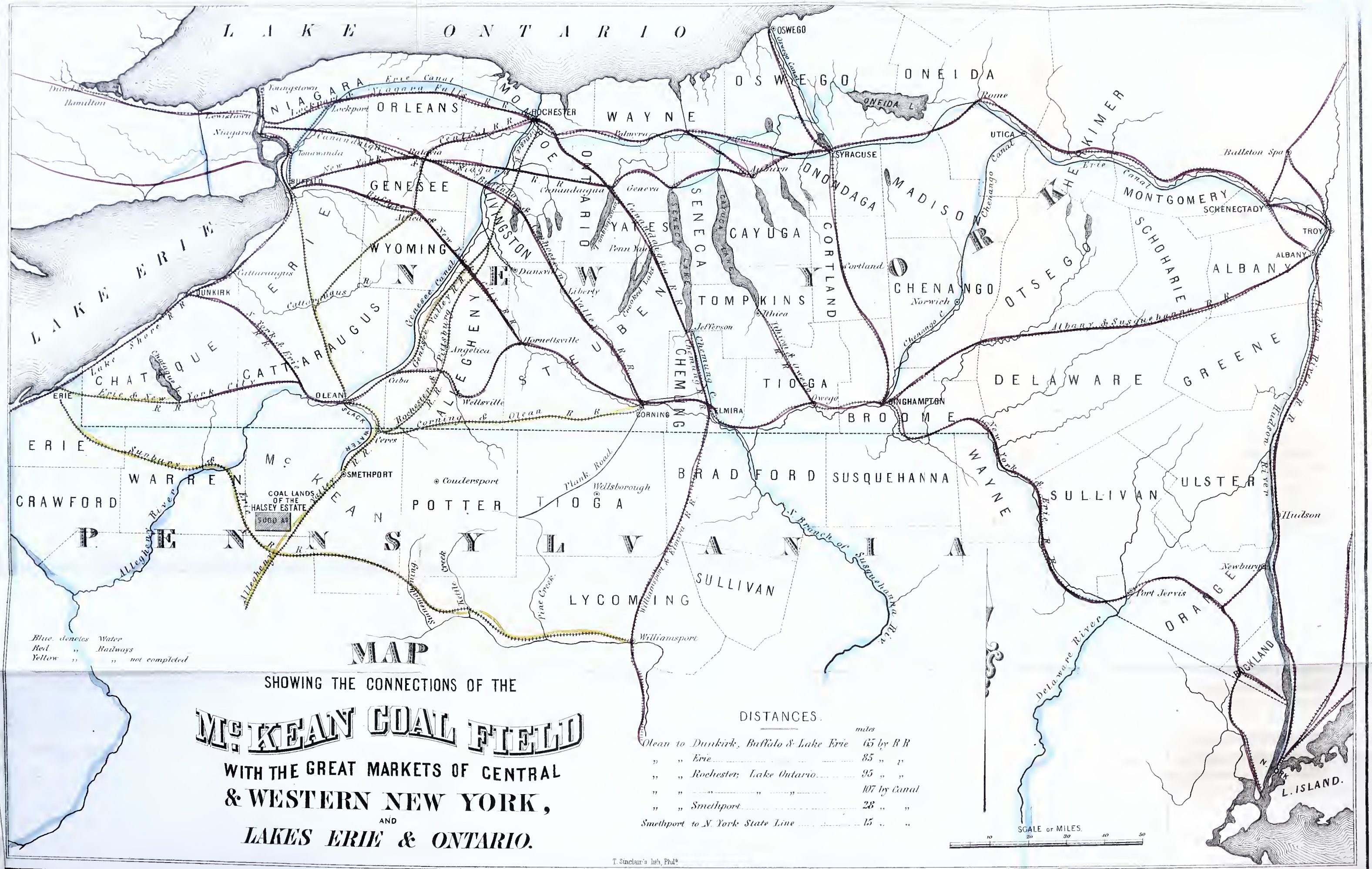
Hence it is proved that coal oil produces most light at smallest cost. He pronounces the coal oil, on test, remarkably pure, not liable to smoke, and not explosive. He concludes by saying he is sanguine that purified Kerosene oil is destined to supersede all other oils and burning fluids, for artificial light; and he recommends it as a most valuable material for that purpose. Certainly, if in this early stage, such purity is attained, what may we not hope for presently?

There is an extensive factory in New York where 300 gallons of coal oil are daily made. Twelve dollars a ton is paid for the coal. One ton produces 100 gallons, at a cost below $5. There is also a factory in Venango county, Pennsylvania, where beautiful oil is made, under patent process, from the bituminous shales.

By this new chemistry, gas-making can be done in every private house, by the cooking range, at a very small cost; and public gas works in cities can be constructed and conducted at very much reduced expenditure. Instead of piling up the coals, and incurring all the complicated processes necessary to convert raw coals into gas, and then to purify it, the oil of coal will alone be used; and gas will be made in one-fourth of the time, and at comparatively less expense.

The Legislature of Pennsylvania has just passed an Act giving to corporations under the general Mining Law, authority to make oils and other products from bituminous coals and shales.

The philosopher will see in this valuable discovery, the hand of Providence. When wood fuel was getting scarce, coal was found. Now the uses of oil are greatly increased by the multiplication of machinery and the rage for speed, while the sources of supply are fearfully diminishing. How opportune! how providential! that just at this crisis we should find these vast storehouses of oil thus preserved to us from the great laboratories of the ancient earth, before man was created! Can we be mistaken in expecting an immense business from this source?



MAP

SHOWING THE CONNECTIONS OF THE

McKEAN COAL FIELD

WITH THE GREAT MARKETS OF CENTRAL

& WESTERN NEW YORK,

AND

LAKES ERIE & ONTARIO.

DISTANCES.

	miles
Olean to Dunkirk, Buffalo & Lake Erie	65 by R R
" " Erie	85 " "
" " Rochester, Lake Ontario	95 " "
" " " " "	107 by Canal
" " Smethport	28 " "
Smethport to N. York State Line	15 " "

T. Sinclair's lith. Phil.ª